

CLAIMS

1. A method of predicting neurological developments resulting from a cerebral disorder in a patient, comprising the steps of
acquiring EEG measures from the patient at at least two time-points,
processing the acquired EEG measures to obtain a delta band power measure at each of the two time-points, and
predicting clinical status of the patient from the change in the delta band power measure between the two time-points.
2. A method as claimed in claim 1, wherein the cerebral disorder is a stroke or like cerebral ischaemia.
3. A method as claimed in claim 2, wherein the EEG measures are obtained in an acute phase of the stroke.
4. A method as claimed in claim 3, wherein the power measure is a power spectrum over a frequency range.
5. A method as claimed in claim 4, wherein the power spectrum is obtained by a Fast Fourier Transform of artefact-free portions of the acquired EEG data.
6. A method as claimed in claim 3, wherein the EEG measures are acquired within 18 hours, and commencing within 7 hours, of onset of symptoms of stroke in the patient.
7. A method as claimed in claim 6, wherein the EEG data is acquired from a plurality of electrodes distributed evenly on a portion of the scalp of the patient overlying the stroke.
8. A method as claimed in claim 1, wherein the processing step is performed by computer software.
9. A method as claimed in claim 1, when used in combination with MRI data obtained from the same patient at the same time as the EEG data.
10. A method of predicting functional outcome of a stroke in a patient, comprising the steps of:
acquiring multi-channel EEG data within an acute phase of the stroke from at least twenty scalp electrodes on the patient;
selecting artifact free periods of the acquired EEG data;
frequency filtering the artifact free EEG data;
separating the filtered data into contiguous segments;
calculating frequency band power for each electrode at a series of frequency points over a frequency range using the Fast Fourier Transform;

computing an average scalp power spectrum by calculating the mean power (at each frequency point) across all scalp electrodes;

determining the delta band frequency at which peak power occurs in each patient's average scalp power spectrum and the power measure associated with this peak frequency for each portion of artifact-free EEG data;

subtracting the power measure at one time-point from the corresponding power measure at a subsequent time-point, and dividing the difference by the elapsed time between the two time-points to thereby calculate the slope of a line constituting the cross-temporal change in delta power; and

converting the resulting value of the slope to a quotient of the first power measure; and predicting stroke outcome from the quotient.

11. A method as claimed in claim 10, wherein reduction in the power measure between the two time points provides an indication of expected clinical improvement in the stroke patient subsequently.

12. A method of predicting neurological developments resulting from a stroke or like cerebral ischaemia in a person, comprising the steps of .

acquiring EEG data from the person in an acute phase of the stroke,

processing the acquired EEG data to obtain a measure of power in the delta band at at least two time-points, and

predicting neurological outcome in the patient from the stroke from the change in the power measure between the two time-points.

13. A method as claimed in claim 12, wherein the EEG data are acquired within 18 hours of onset of symptoms of stroke in the person.

14. A method as claimed in claim 13, wherein the acquisition of the EEG data commences within 7 hours of onset of symptoms of stroke in the person.

15. A method as claimed in claim 12, wherein the processing step is performed by computer software.